A device to analyze or reconstruct one or more signals Ij coming from one or more light sources, comprises: means to separate the signals I_j into at least two signals I_{j1} and I_{j2}, at least two channels V_1, V_2 respectively possessing a gain G_1, G_2 and a dynamic range D_1, D_2, said channels having at least one sensor and being adapted to obtain, at output, a signal I'_{j1}, I'_{j2} with amplitudes $A_{j1}(t)$, $A_{j2}(t)$, a device for the processing of the signals I'_{j1}, I'_{j2} adapted to memorizing the amplitude $A_{j1}(t)$, $A_{j2}(t)$ of at least one of the two signals I'_{j1}, I'_{j2} when I'_{j1} and/or I'_{j2} is below a threshold value S_{max} and to determining the amplitude $A_j(t)$ of the corresponding signal I'_j. Streak camera with wide range of amplitude.

Figure 1.